



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/725,772	12/01/2003	Luis Serra	57450/1141	3809

35743 7590 06/06/2007  
KRAMER LEVIN NAFTALIS & FRANKEL LLP  
INTELLECTUAL PROPERTY DEPARTMENT  
1177 AVENUE OF THE AMERICAS  
NEW YORK, NY 10036

EXAMINER
----------

NGUYEN, PHU K

ART UNIT	PAPER NUMBER
----------	--------------

2628

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

06/06/2007

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

klpatent@kramerlevin.com

<b>Office Action Summary</b>	Application No. 10/725,772	Applicant(s) SERRA, LUIS	
	Examiner Phu K. Nguyen	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

*Phu K. Nguyen*

**PHU K. NGUYEN  
PRIMARY EXAMINER  
GROUP 2300**

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, "said regions" (line 4) has no antecedent basis, since Applicant has not defined any means of said regions. It appears that Applicant means "said subregions."

In claim 2, "the same" (line 2) is unclear as whether it is contradict to the "spatially distinct" in claim 1.

In claim 8, "two subregions whose boundaries have a common plane" (line 3) is unclear as whether it is contradict to the "spatially distinct" in claim 1.

In claim 21, "said regions" (line 8) has no antecedent basis, since Applicant has not defined any means of said regions. It appears that Applicant means "said subregions."

In claim 22, "said regions" (line 6) has no antecedent basis, since Applicant has not defined any means of said regions. It appears that Applicant means "said subregions."

In claim 24, "the same 3D data set" (line 1) is unclear as whether it is contradict to the "spatially distinct" in claim 22.

In claim 25, "said regions" (line 6) has no antecedent basis, since Applicant has not defined any means of said regions. It appears that Applicant means "said subregions."

In claim 28, "region" has no antecedent basis, since Applicant has not defined any means of said regions. It appears that Applicant means "said subregions."

The remaining claims are rejected since they are dependent upon the rejected claims.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The claimed feature of "spatially distinct" in the independent claims are not specifically defined in the original disclosure.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2628

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by ROCKRO et al. (Planning and Simulation of Neurosurgery in a Virtual Reality Environment).

As per claim 1, Rockro teaches the claimed "method of displaying 3D data", comprising: "providing at least one 3D data set defined by a 3D co-ordinate system" (Rockro, page 123, figure 2); "providing two or more subregions within the coordinate system; said regions being bounded in three dimensions" (Rockro, page 123, column 2, section Segmentation; and page 126, figure 6 shows an example of subdivisions of tumor, sinus, and cerebral arteries); "assigning a set of display rules to each subregion" (Rockro, page 124, column 1; section Visualization; and page 126, figure 6 shows the different colors assigned to tumor, sinus, and cerebral arteries); "displaying part, all or none of a 3D data set in each subregion according to the rules assigned to that subregion" (Rockro, page 126, figure 6 shows the blue tumor, pink sinus, and red arteries); "wherein said two or more subregions are spatially distinct and wherein their boundaries can be modified by a user" (Rockro, the blue tumor, pink sinus, and red arteries are spatially distinct).

#### RESPONSE TO APPLICANT'S ARGUMENTS:

Applicant's arguments filed May 7, 2007 have been fully considered but they are not deemed to be persuasive. During the interview on February 27, 2007, the term "spatially distinct" is suggested to clarify the distinction between the Rockro reference

and the applicant's invention; specifically, the difference in the displays of subregions in Rockro's figure 6 and Applicant's figure 26. However, the term "spatially distinct" seems not good enough to distinct Reckro's "blue tumor, pink sinus, and red arteries."

Applicant should work out some other terms to make clear distinction.

Claim 2 adds into claim 1 "the 3D data set displayed in each subregion is the same, but the display rules are different" (Rockro, for marking purpose, the voxels are painted and changed to different colors; page 125, column 1).

Claim 3 adds into claim 1 "the 3D data set displayed in each display subregion is unique to that display subregion" (Rockro, Data Registration, page 122, column 2; the data is registered uniquely for each display subregion).

Claim 4 adds into claim 3 "the 3D data sets displayed in each display subregion are 3D scans of a human or animal body or portion thereof using different sensing modalities" (Rockro, the fusion of CT, MRI data sets; page 123, column 1).

Claim 5 adds into claim 4 "said sensing modalities comprise one or more of CT, MR, PET, SPECT and US" (Rockro, the fusion of CT, MRI data sets; page 123, col. 1).

Claim 6 adds into claim 1 "the subregions comprise volumes, 2D surfaces, and points" (Rockro, the displayed 3D objects comprising 3D volume, 2D slice, or points;

page 124, figures 3-4).

Claim 7 adds into claim 1 "the boundaries of at least one subregion define a rectangular crop box" (Rockro, the cut, crop, clip tools; page 124, column 1, section Surgical Planning).

Claim 8 adds into claim 7 "two subregions whose boundaries have a common plane" (Rockro, the side plans of the box divides the object into individual segments; page 128, figure 7).

Claim 9 adds into claim 1 "a user can define one or more boundary planes that divide a given region into two or more display subregions" (Rockro, the cut or clip tool; page 124, column 1, section Surgical Planning).

Claim 10 adds into claim 9 "the boundary planes are parallel to one or more surfaces of a 3D data set" (Rockro, the processed object is displayed with any orientation according to its rotation; page 124, column 1, or page 125, column 1).

Claim 11 adds into claim 1 "the boundaries of the display subregions and the set of display rules for each display subregion are defined by a user" (Rockro, the user manipulation of object's color; page 124, column 1, section: visualization).

Claim 12 adds into claim 11 "the boundaries of the display subregions and the set of display rules for each display subregion are defined by system defaults which can be modified by a user" (Rockro, Restoration/Modification of the default original color; page 125, column 1).

Claim 13 adds into claim 1 "when a user modifies the boundaries, points in a 3D data set now located in a new display subregion are displayed according to the corresponding new display rules in substantially real time as the boundaries change" (Rockro, page 124, column 1 to page 125, column 1; section Visualization and Surgical Planning).

Claim 14 adds into claim 13 "said variation of the boundaries of said subregions includes one or more of translation, rotation, scaling, shear, linear warping or non-linear warping" (Rockro, page 124, column 1 to page 125, column 1; section Visualization and Surgical Planning includes the object manipulations).

Claim 15 adds into claim 1 "all voxels in the subregion need not be contiguous" (Rockro, the example of bone removal displays two separate parts of the surgery bone; page 125, column 2).

Claim 16 adds into claim 11 "a user defines or modifies said boundaries and/or display rules via an interactive object within the display" (Rockro, page 124, column 1 to



page 125, column 1; section Visualization and Surgical Planning includes the object manipulations).

Claim 17 adds into claim 12 "a user defines or modifies said boundaries and/or display rules via an interactive object within the display" (Rockro, page 124, column 1 to page 125, column 1; section Visualization and Surgical Planning includes the object manipulations).

Claim 18 adds into claim 11 "a user defines or modifies said boundaries and/or display rules via a mouse, trackball, joystick or other spatial 2D input peripheral" (Rockro, the 2D interface in page 119, column 1 or the virtual stylus in figure 1 page 122 and figure 2, page 123).

Claim 19 adds into claim 12 "a user defines or modifies said boundaries and/or display rules via a mouse, trackball, joystick or other spatial 2D input peripheral" (Rockro, the 2D interface in page 119, column 1 or the virtual stylus in figure 1 page 122 and figure 2, page 123).

Claim 20 adds into claim 1 "the 3D data set displayed in each display subregion is stored as one of volume raster data or geometric constructs" (Rockro, page 122,

column 1, section Data Loading).

Claims 21-22 claim a computer program based on the method of claims 1-20; therefore, they are rejected under the same reason.

Claim 23 adds into claim 1 "one or more 3D data sets are displayed in each subregion" (Rockro, the Fusion of CT and MRI image data; page 123, col. 1).

Claim 24 adds into claim 1 "the same 3D data set is displayed to each display subregion" (Rockro, the display data is rendered from one or more data set).

As per claim 25, Rockro teaches the claimed "method of displaying 3D data in a 3D display system", comprising: "loading one or more 3D data sets into a 3D display system, each 3D data set being defined by a 3D coordinate system and being bound in three dimensions" (Rockro, data loading; page 122, column 1); "providing two or more subregions within 3D coordinate system, said regions being bounded in three dimensions" (Rockro, page 123, column 2, section Segmentation; and page 126, figure 6 shows an example of subdivisions of tumor, sinus, and cerebral arteries); "assigning one or more 3D data sets to each display subregion; assigning a set of display rules to each display subregion" (Rockro, page 124, column 1; section Visualization; and page 126, figure 6 shows the different colors assigned to tumor, sinus, and cerebral arteries); "displaying part, all or none of a 3D data set in each display subregion according to the

rules assigned to that subregion" (Rockro, page 126, figure 6 shows the blue tumor, pink sinus, and red arteries); "wherein said two or more subregions are spatially distinct and wherein their boundaries can be modified by a user" (Rockro, the blue tumor, pink sinus, and red arteries are spatially distinct).

**RESPONSE TO APPLICANT'S ARGUMENTS:**

Applicant's arguments filed May 7, 2007 have been fully considered but they are not deemed to be persuasive. During the interview on February 27, 2007, the term "spatially distinct" is suggested to clarify the distinction between the Rockro reference and the applicant's invention; specifically, the difference in the displays of subregions in Rockro's figure 6 and Applicant's figure 26. However, the term "spatially distinct" seems not good enough to distinct Reckro's "blue tumor, pink sinus, and red arteries." Applicant should work out some other terms to make clear distinction.

Claim 26 adds into claim 25 "one of the 3D data sets is displayed in each display subregion" (Rockro, the Fusion of CT and MRI image data; page 123, col. 1).

Claim 27 adds into claim 25 "only one 3D data set is displayed in each subregion" (Rockro, the display data is rendered from one or more data set).

Claim 28 adds into claim 3 "the 3D data sets displayed in each region are surface

renderings of polygonal data sets" (Rockro, skin surface of the MRI medical object; page 124, column 2).

Claim 29 adds into claim 25 "in at least one subregion at least two 3D data sets are displayed" (Rockro, Data Registration, page 122, column 2; the data is registered uniquely for each display subregion).

Claim 30 adds into claim 1 "said subregions can be rotated or translated by a user within the 3D co-ordinate system" (Rockro, figure 2B and 2D; page 123).

This action has been made NON-FINAL.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phu K. Nguyen whose telephone number is (571) 272 7645. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (571) 272 7664. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2628

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Phu K. Nguyen  
May 29, 2007

  
**PHU K. NGUYEN**  
**PRIMARY EXAMINER**  
**GROUP 2300**